ACS-1903   **Lab #11**   **Due** by Wednesday November 27 at 11:59 pm

- If you have questions during this lab do not hesitate to ask your lab demonstrator.
- All classes **must** have comments at the beginning containing your name and student number.
- <u>Do not use</u> `break` unless it is in a `switch`
- <u>Do not use</u> `continue` and do not use `arrays`

Begin with the Student and Subject classes from the text's [sample](#) programs. The code already supports a subject area having many students. **Implement** the business rule (use an array list in Student) where a student can have multiple majors (no upper limit). This accommodates single majors, double majors, triple majors, etc.

```
┌──────────┐  *  ◄ majors in  *  ┌──────────┐
│ Subject  │─────────────────────│ Student  │
└──────────┘    has majors ►     └──────────┘
```
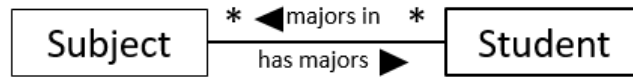
- A subject area has many students majoring in the subject
- *A student declares <u>one or more</u> subject areas as a major*

You must <u>modify the Student class</u> so it has an array list of subject areas with getters and setters, and another method to allow a subject area to be added to a student's list of major subject areas. Make any modifications you find necessary to other methods.

Develop a program called `LastLab` that tests the functionality of Student and Subject. Use the following sample data to test your program. Of course, your code must work if other subjects/students were instantiated.

Create three subject areas and 3 students

       subjects: Physics, Statistics, Chemistry

       students: Peter, Joe, Mary

where:

       Peter majors in Physics and Statistics

       Joe majors in Statistics and Chemistry

       Mary majors in Physics, Statistics, and Chemistry

Then your program must display

       each subject area and its majors (students).

       each student and his/her majors (subjects).

Given the sample data, the output will be equivalent to:

```
Physics
        Majors: Peter, Mary
Statistics
        Majors: Peter, Joe, Mary
Chemistry
        Majors: Joe, Mary
Peter
        Major areas: Physics, Statistics
Joe
        Major areas: Statistics, Chemistry
Mary
        Major areas: Physics, Statistics, Chemistry
```

Submit the three files

       .   `Student.java,   Subject.java,   LastLab.java`

to the email corresponding **to your lab section** with a **Subject line** `Lab11`